REMARKS

Applicant asserts that the present invention is new, non-obvious and useful. Favorable reconsideration and allowance of the application are respectfully requested in view of the foregoing amendments and following remarks.

Status of Claims

Claims 1–11, 13–15, 17–23, 25, and 33 are pending in the application. Claims 1, 13, 21, 25, and 33 have been amended herein. No new matter has been added.

Applicant has voluntarily amended independent claims 1, 13, 21, 25, and 33 to more particularly point out and distinctly claim the subject matter that Applicant considers the invention. Specifically, Applicant has amended the claims to clarify that elements of the claimed method(s) are performed "using a DICOM communications protocol" and that elements of the claimed system(s) are configured to "communicate directly one with another using a DICOM communications protocol".

It is respectfully asserted that the amendments to the claims herein present the independent claims in better form for consideration on appeal, do not change the literal scope of the claims, and do not add new subject matter. Applicant respectfully requests entry of the Amendment to the claims.

CLAIM REJECTIONS

35 U.S.C. § 103 Rejections

In the Office Action, the Examiner rejected claims 1–7, 11, 13–15, 17–19, 21–23, 25, and 33 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,574,629 to Cooke, Jr. et al. (hereinafter "Cooke") in view of "Digital Imaging and Communications in Medicine" Supplement 10, Basic Worklist Management, 1996 (hereinafter "Supplement 10").

In addition, the Examiner rejected claims 8–10 under 35 U.S.C. §103(a) as being unpatentable over Cooke in view of Supplement 10 and further in view of U.S. Patent No. 6,910,106 to Sechrest et al. (hereinafter "Sechrest"). The Examiner also rejected claim 20

under 35 U.S.C. §103(a) as being unpatentable over Cooke in view of Supplement 10 and further in view of U.S. Publication No. 2002/0091765 to Bocionek (hereinafter "Bocionek").

Applicant respectfully traverses these rejections in view of the remarks that follow.

Applicant respectfully asserts that independent claims 1, 13, 21, 25 and 33, as currently amended, include features that are not taught or suggested by the references of Cooke and Supplement 10, taken individually or in combination, including combination with the references of Sechrest and Bocionek. Accordingly, the rejections under 35 U.S.C. §103 of these claims and of the claims dependent thereon should be withdrawn.

Specifically, none of the cited references, taken individually or in combination, teaches or suggests a system "*wherein said at least one modality, said storage, and said prefetcher are configured to communicate directly one with another using a DICOM communications protocol*", as recited by claim 13. None of the cited references, taken individually or in combination, teaches or suggests a system "*wherein said storage and said retriever are configured to communicate directly one with another using a DICOM communications protocol*", as recited by claim 21. None of the cited references, taken individually or in combination, teaches or suggests "*using a Digital Image Communications in Medicine (DICOM) communications protocol to query a DICOM modality worklist*" and "*using said DICOM communications protocol to communicate directly with said storage for prefetching*", as recited by claims 1, 25, and 33.

The Examiner stated in the Office Action that Cooke does not expressly disclose the details of obtaining information from a Digital Image Communications in Medicine (DICOM) modality worklist. Applicant agrees that Cooke does not disclose details from the DICOM modality worklist, expressly or otherwise. Moreover, Applicant asserts that Cooke describes a system that clearly does not require, suggest, or imply "*using said DICOM communications protocol to communicate directly for prefetching*", as is recited by Applicant's independent claims.

In contrast to Applicant's claimed embodiments, the system of Cooke relies on a PACS broker to obtain information from the RIS, using HL7 communication, and to translate between HL7 and DICOM for communication with other elements of the PACS system (*see*, for example, Figure 4 of Cooke). Therefore, Cooke's lack of detail regarding use of the

DICOM modality worklist is not random, and stems from the fact that Cooke does not purport the non-obvious novelty of using the DICOM communications protocol to communicate directly with other elements of the system to perform prefetching operations efficiently, as in the systems and methods claimed by the present application.

Furthermore, Applicant asserts that Supplement 10, while describing basic worklist management, also does not teach or suggest *"using said DICOM communications protocol to communicate directly for prefetching"*, and thus does not cure the deficiencies of Cooke. In contrast to applicant's claimed embodiments, Supplement 10 does not describe actual querying of a DICOM modality worklist for the specific purpose of prefetching. Specifically, the DICOM Modality Worklist SOP Class as described in Supplement 10 is "not intended to provide access to all IS information and services which may be of interest" since "its primary focus is the efficient operation of the image acquisition equipment" (*see* Supplement 10, page v, lines 44–45).

Accordingly, neither Cooke nor Supplement 10, taken individually or in combination, teaches or suggests the claimed features *"wherein said at least one modality, said storage, and said prefetcher are configured to communicate directly one with another using a DICOM communications protocol"*, *"wherein said storage and said retriever are configured to communicate directly one with another using a DICOM communications protocol"*, and/or *"using said DICOM communications protocol to communicate directly with said storage for prefetching"*, as recited in Applicant's amended independent claims.

In addition, Applicant respectfully asserts that the claimed features of Applicant's invention would **not** have been obvious to one of ordinary skill in the art at the time the invention was made in view of the prior art references of record. One of the useful, innovative and novel features of embodiments of the invention is the ability of various system elements to communicate directly using the DICOM communication protocol, to perform prefetching based on DICOM modality worklist information.

To demonstrate the state of the art in the field of the present invention, Applicant has attached Appendix A, *"The seven levels of PACS integration"*, a "whitepaper" by Herman Oosterwijk of Ringholm GmbH, published on April 22, 2004 ("the whitepaper"). This paper, which was published long <u>after</u> the filing date of the present Application, is not a prior art

reference and, therefore, Applicant is not required to distinguish the claims of the present application over this paper. Appendix A serves only to illustrate the novelty and usefulness of Applicant's claimed invention over the prior art, as well as the long felt need for such a solution.

For example, based on careful analysis of the whitepaper, Applicant notes that even at such late date, six months after the filing date of the present Application, leading players in the field of the invention still relied on conversion "brokers", such as a PACS broker, or other proprietary systems of particular vendors. The proposition of a system that dispenses with a PACS broker, by using the standardized DICOM modality worklist and communication protocol, as described in the whitepaper, was suggested by others only after the filing date of the present application and only in the context of a prospective and hypothetical scenario, as follows:

> "For example, a Radiology Information System (RIS) passes scheduling information in the form of an HL7 message to an interface box (commonly known as "broker"). The box then serves modalities requesting a DICOM Modality Worklist for their daily exam schedule.
>
> Compare this to a RIS that has an API to a DICOM application that provides the Worklist directly to the modality, without having an extra to perform HL7 to DICOM mapping. There is no question that scenario two is more reliable because yet another box increases the chance for hardware failure."
>
> "Without the messaging and profile-level integration, the communication between Information Systems and Modalities, Workstations and other PACS components would all be proprietary. For example, Japan, has a lower penetration of DICOM for PACS, because many vendors provide complete systems that are tightly integrated which hospitals seem perfectly happy with."

Applicant respectfully yet strongly disagrees with the Examiner's argument that "one of ordinary skill in the art would have been motivated to replace/substitute the PACS broker to facilitate the communication of information from the RIS and instead use the DICOM communication protocol". Furthermore, Applicant asserts that a system *"wherein said at least one modality, said storage, and said prefetcher are configured to communicate directly one with another using a DICOM communications protocol"*, as recited by Applicant's independent claims, is not a known substitute for a system that includes a PACS broker.

Supplement 10 has been available in final text form since February 1, 1996, long before the filing date of the current application (2003), Cooke (1998), and Bocionek (2001). However, despite the availability of the DICOM communications protocol for worklist management since 1996, Applicant's claimed feature of *"using said DICOM communications protocol to communicate directly for prefetching"* remained novel at the time the invention was made (2003), and for quite some time thereafter (2004), as is evidenced, for example, by the theoretical discussion of such possibility in the Ringholm GmbH whitepaper:

> "DICOM just standardized the general purpose Worklist service whereby workstations can access the list of exams to be read, update the reporting status, and exchange information about the data needed for the reporting. **Supporting messaging standards alone is not sufficient.** Efforts are being made to define additional profiles such as defined by IHE, and to require vendors to support these." (**Emphasis** added)

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the rejection under 35 U.S.C. §103 of the amended independent claims 1, 13, 21, 25 and 33 and of claims 2–11, 14–15, 17–20 and 22–23 dependent thereon.

Conclusion

In view of the foregoing amendments and remarks, Applicant submits that the pending claims distinguish over the prior art of record and are in condition for allowance. Favorable consideration and passage to issue are therefore respectfully requested.

The Examiner is invited to telephone the undersigned counsel to discuss any further issues yet to be resolved in connection with this application. Please charge any fees associated with this paper to deposit account No. 09-0468.

Respectfully submitted,

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